COMPUTATION OF THE CUBE ROOT OF 2.

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HAVING recently computed the cube root of 2 to 52 places of decimals, by the method of approximation found in Simpson's Algebra, I submit it, with the work, for publication.

Let $R =$ the true nth root of a number N, and $r =$ a near approximate root, and put $q = nr^n \div (N - r^n)$; then (Simpson's Algebra, p. 169)

$$R = r + \frac{r(2q+n)}{q(2q+2n-1)+\frac{1}{6}(n-1)(2n-1)}, \text{ very nearly,}$$

which he says (p. 165) "quintuples the number of figures at every operation."

Taking $n = 3$ we have for the cube root of N,

$$R = r + \frac{r(2q+3)}{q(2q+5)+\frac{5}{3}}, \text{ very nearly.}$$

To compute the cube root of 2, take $r = 1.25 = \frac{5}{4}$; then

$$\sqrt[3]{2} = 1.25 + \frac{\frac{5}{4}(253)}{125(255)+\frac{5}{3}} = \frac{5}{4} + \frac{759}{76504} = \frac{96389}{76504} = 1.2599210498+,$$

which is true to the last figure.

Now take $\quad r = \dfrac{96389}{76504}, \qquad$ then $r^3 = \dfrac{895534711311869}{447767355672064}$,

and after some reductions we get

$$\sqrt[3]{2} = \frac{96389}{76504} + \frac{556917410073276535841 7747}{36812917798558512816995939188473 6464},$$

$$= \frac{46381370042453504410980700754677 2121}{36812917798558512816995939188473 6464},$$

$$= 1.2599210498948731647672106072782283505702514647015079+.$$

ON THE TRISECTION OF AN ANGLE.

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I SHALL here give some of the different methods which have been devised for the solution of this celebrated problem of the Platonic school.

1. Let $AB = a$ represent an arc, whose radius is r, and let F represent the point in which AB is trisected.